

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application for:

Michael D. Gallagher et al.

Serial No.: 10/688,470

Filing Date: 10/17/2003

For: APPARATUS AND METHOD  
FOR EXTENDING THE  
COVERAGE AREA OF A  
LICENSED WIRELESS  
COMMUNICATION SYSTEM  
USING AN UNLICENSED  
WIRELESS COMMUNICATION  
SYSTEM

Examiner: Brandon J Miller

Group Art Unit: 2683

**SUPPLEMENTAL AMENDMENT**

Commissioner for Patents  
5 P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Examiner:

Applicants submit this Supplemental Amendment to supplement the Amendment and  
10 Response submitted on 12/27/05. Applicants respectfully request the entry of the Supplemental  
Amendment as follows:

**Amendment to the Claims** are reflected in the listing of claims, which begins on page 2  
of this paper.

**Remarks** begin on page 6 of this paper.

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application. The following listing provides the amended claims with deleted material crossed out and new material underlined to show the changes made.

5           **Listing of Claims:**

1.       (Currently Amended) A system, comprising:

          a mobile station, including:

                  a first level 1, a first level 2, and a first level 3 protocol for a licensed wireless service having a licensed wireless channel serviced by a telecommunications network;

10       and

                  a second level 1, a second level 2, and a second level 3 protocol for an unlicensed wireless service activated when said mobile station is within an unlicensed wireless service area;

                  an indoor base station operable to communicate with said mobile station through  
15       an unlicensed wireless channel; and

                  an indoor network controller coupled to said indoor base station and adapted to exchange signals with said telecommunications network;

                  wherein said network controller is configured to convert said second level 1, said second level 2, and said second level 3 protocol into a standard base station controller interface  
20       protocol recognized by said telecommunications network;

                  wherein said indoor base station operates transparently to said second level 3 protocol;

                  wherein said mobile station and said network controller are configured to establish a communication session on said unlicensed wireless channel, said network controller

using said standard base station controller interface protocol ~~of~~ to communicate with said licensed network;

wherein said second level 3 protocol comprises a radio resource sublayer adapted for said unlicensed wireless system, wherein an access mode switch is triggered to utilize a mobility management sublayer and a call management sublayer shared with said first level 3 protocol.

2. (Canceled)

3. (Original) The system of claim 1, wherein said telecommunication network comprises a mobile switch center for voice data.

4. (Original) The system of claim 1, wherein said mobile station is configured to register its location with said indoor network controller subsequent to detection that it is within said unlicensed wireless service area.

5. (Original) The system of claim 1, wherein said second level 1 protocol comprises a Bluetooth protocol.

6. (Original) The system of claim 1, wherein said second level 1 protocol comprises a wireless local area network protocol.

7. (Canceled)

8. (Previously Presented) The system of claim 1, wherein said second level 1 protocol comprises 802.11 IEEE wireless standard protocol.

9-20. (Canceled)

21. (Currently amended) A method of establishing communication between a licensed wireless communication system and an unlicensed wireless communication system, the method comprising:

with the licensed wireless communication system, servicing a licensed wireless channel of a mobile station, wherein the mobile station has a first level 1, a first level 2, and a first level 3 protocol for a licensed wireless service;

5 with the mobile station, establishing a communication through an unlicensed wireless channel when the mobile station is within an unlicensed wireless service area, said communication utilizing a second level 1, a second level 2, and a second level 3 protocol for an unlicensed wireless service;

at a network controller, converting said second level 1, said second level 2, and said second level 3 protocols into a standard base station controller interface protocol recognized  
10 by the licensed wireless communication system; and

exchanging signals between the indoor network controller and the licensed wireless communication system, wherein the indoor network controller is coupled to an indoor base station that services the unlicensed wireless service area and communicates through the unlicensed wireless channel with the mobile station, said indoor base station operating  
15 transparently to said second level 3 protocol, wherein said second level 3 protocol comprises a radio resource sublayer adapted for said unlicensed wireless system;

triggering an access mode switch to utilize a mobility management sublayer and a call management sublayer shared with said first level 3 protocol.

22. (Original) The method of claim 21, wherein said licensed wireless communication  
20 system comprises a mobile switch center for voice data.

23. (Original) The method of claim 21, further comprising:  
configuring said mobile station to register its location with said indoor network controller subsequent to detection that it is within said unlicensed wireless service area.

24. (Original) The method of claim 21, wherein said second level 1 protocol comprises a Bluetooth protocol.

25. (Original) The method of claim 21, wherein said second level 1 protocol comprises a wireless local area network protocol.

5 26. (Canceled)

27. (Previously Presented) The method of claim 21, wherein said second level 1 protocol comprises 802.11 IEEE wireless standard protocol.

## REMARKS

Applicants submit this Supplemental Amendment to supplement the Amendment and Response submitted on 12/27/05. In this Amendment, Applicants have incorporated limitations of claim 7 to claim 1 and have incorporated limitations of claim 26 to claim 21. According, Applicants have cancelled claims 7 and 26. Applicants have also corrected some informalities in claim 1.

## CONCLUSION

In view of the foregoing, it is submitted that all pending claims, namely claims 1, 3-6, 8 and 21-25, 27 are in condition for allowance. Reconsideration of the rejections and objections is requested. Allowance is earnestly solicited at the earliest possible date.

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Respectfully submitted,

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Dated: April 05, 2006

/Ali Makoui/

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